Appendix A
Development of MSW Projections

MSW Generation Forecasts

The City based its MSW generation projections on the predicted per capita MSW generation rate and population projections for the planning period. In addition, employment projections were used to predict commercial waste generation, as discussed later in this appendix.

For projections of recycling quantities, the City forecasted its overall, residential, and commercial recycling rates to remain at their three-year averages. Therefore, the City projects that the overall recycling rate will remain at 51.9 percent, the residential recycling rate will remain at 55.5 percent, and the commercial recycling rate will remain at 48.9 percent.

Actual City per Capita Generation Data

The City examined actual per capita waste generation data from 2000 through 2002 (Table A-1) to determine trends. Recent scale records show a generation rate of 7.05 pounds per capita per day (pcd) in 2001, increasing to 7.16 pcd in 2002. This represents an annual increase in City MSW generation of approximately 2 percent.

Table A-1. Historical City of Falls Church MSW Generation Rates

Year	MSW (tons)	Population	MSW Generation Rate (pcd)
2000	N/A	10.377	N/A
2001	13,406	10,422	7.05
2002	13,674	10,466	7.16

N/A - Data not available

Regional and National Per Capita Generation Data

The MSW generation rate in the City of Falls Church is higher than national and regional generation rate estimates. Nationally, the MSW generation rate has remained constant at 4.51 pcd in both 2000 and 1990. Regionally, the Metropolitan Washington Council of Governments estimated an MSW generation rate of 5.8 pcd for the Washington metropolitan area.

Alternative MSW Projections

From the differing trends and estimates of MSW generation in the City, regionally, and nationally, the City developed alternative MSW projections to address the probable range of variance in the future generation rates.

Alternative 1: MSW Generation in the City Remains Constant

Alternative 1 is a conservative alternative that assumes the current City waste generation rate of 7.10 pcd will not increase throughout the planning period. This alternative reflects the assumption that City waste generation will follow the zero-growth trend of national MSW generation rates over the past 10 years. The City calculated MSW projections for this alternative by multiplying the average MSW generation rate of 7.10 pcd by the City population estimates from 2004 to 2025. Table A-2 shows the MSW projections for this alternative.

Table A-2. City MSW Generation Projections 2004-2025: Alternative 1—No Increase in Generation Rate

Year	Population	MSW generation rate (pcd)	MSW generation projection (tons)	Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2004	10,555	7.10	13,685	51.9	7,104	6,581
2005	10,600	7.10	13,743	51.9	7,134	6,609
2010	11,300	7.10	14,650	51.9	7,605	7,045
2015	11,600	7.10	15,039	51.9	7,807	7,232
2020	11,900	7.10	15,428	51.9	8,009	7,419
2025	12,100	7.10	15,687	51.9	8,143	7,544

Alternative 2: MSW Generation in the City Increases at 1 Percent

Alternative 2 assumes that the current City MSW generation rate of 7.10 pcd will likely increase throughout the planning period, but at a lower rate of 1 percent. The City per capita waste generation rate has increased approximately 2 percent per year from 2000 through 2002. This increase was observed in a period of high economic growth; with a projected lower economic growth rate over the SWMP planning period, the City does not expect the generation rate to increase at 2 percent. Therefore, the City chose a 1 percent per year increase as the high-end generation rate increase scenario for MSW projections.

For Alternative 2, the City calculated MSW projections by first increasing the average MSW generation rate by 1 percent each year and then multiplying the MSW generation rate by the City population estimates for the corresponding year. Table A-3 shows the MSW projections from 2004 to 2025 for this alternative. This alternative returns an approximate 25 percent higher MSW generation rate by the year 2025 than Alternative 1.

Table A-3. City MSW Generation Projections 2004-2025: Alternative 2—1 Percent Annual Increase in Generation Rate

Year	Population	MSW generation rate (pcd)	MSW generation projection (tons)	Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2004	10,555	7.17	13,822	51.9	7,175	6,647
2005	10,600	7.25	14,019	51.9	7,277	6,741
2010	11,300	7.62	15,707	51.9	8,154	7,553
2015	11,600	8.00	16,946	51.9	8,797	8,149
2020	11,900	8.41	18,271	51.9	9,485	8,787
2025	12,100	8.84	19,526	51.9	10,136	9,390

Alternative 3: MSW Generation in the City Remains Constant; Estimates Calculated Separately for Residential and Commercial Sectors

Alternative 3 includes separate estimates for the residential and commercial sectors. For the residential sector, MSW projections are calculated similarly to Alternative 1, with a constant generation rate and using population estimates. However, commercial waste generation is more closely related to City employment than the total population, so the City used employment data rather than population to calculate MSW projections for the commercial sector. City employment is projected to increase at a lesser rate than the population, so this alternative generates lower estimates than Alternative 1. Table A-4 shows the MSW projections from 2004 to 2025 for Alternative 3.

Table A-4. City MSW Generation Projections 2004-2025: Alternative 3— Using Employment, No Increase in Generation Rate

Year	Population	Employ.	Commercial generation rate (pcd)	Residential generation rate (pcd)	MSW generation projection (tons)	Comm. Recycling rate (%)	Res. Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2004	10,555	9,480	4.27	3.25	13,645	48.9	55.5	7,085	6,561
2005	10,600	9,500	4.27	3.25	13,687	48.9	55.5	7,107	6,580
2010	11,300	10,000	4.27	3.25	14,492	48.9	55.5	7,528	6,964
2015	11,600	10,300	4.27	3.25	14,904	48.9	55.5	7,741	7,163
2020	11,900	10,500	4.27	3.25	15,237	48.9	55.5	7,916	7,322
2025	12,100	10,600	4.27	3.25	15,434	48.9	55.5	8,020	7,414

Alternative 4: MSW Generation Increases at 1 Percent; Estimates Calculated Separately for Residential and Commercial Sectors

Like Alternative 3, Alternative 4 includes separate estimates for the residential and commercial sectors. For the residential sector, the City calculated MSW projections similarly to Alternative 2, with a 1 percent per year increase in the generation rate and using population estimates. The

City used employment data rather than population to calculate MSW projections for the commercial sector. City employment is projected to increase at a lesser rate than the population, so this alternative generates lower estimates than Alternative 2. Table A-5 shows the MSW projections from 2004 to 2025 for Alternative 4.

Table A-5. City MSW Generation Projections 2004-2025: Alternative 4—Using Employment, 1 Percent Annual Increase in Generation Rates

Year	Population	Employ.	Commercial generation rate (pcd)	Residential generation rate (pcd)	MSW generation projection (tons)	Comm. Recycling rate (%)	Res. Recycling rate (%)	MSW recycled (tons)	MSW disposal (tons)
2004	10,555	9,480	4.31	3.28	13,782	48.9	55.5	7,155	6,626
2005	10,600	9,500	4.35	3.31	13,962	48.9	55.5	7,250	6,713
2010	11,300	10,000	4.58	3.48	15,537	48.9	55.5	8,071	7,467
2015	11,600	10,300	4.81	3.66	16,794	48.9	55.5	8,722	8,071
2020	11,900	10,500	5.06	3.85	18,046	48.9	55.5	9,375	8,671
2025	12,100	10,600	5.31	4.04	19,211	48.9	55.5	9,982	9,229

Note that these projections assume the continuation of the City's current management practices and conditions. Programs implemented by the City of Falls Church over the SWMP planning period may result in lower actual MSW generation amounts than these projections.